【What is claimed is】

1. A polyelectrolyte composition for the humidity sensitive membrane of humidity sensor, characterized in that it comprises at least one compound selected from diamine-based compounds, at least one compound selected from dihaloalkane-based compounds, and at least one compound containing cross-lining functional groups.

2. The polyelectrolyte composition according to claim 1, characterized in that characterized in that it comprises 35-50 wt% of at least one compound selected from diamine-based compounds, 45-64.9 wt% of at least one compound selected from dihaloalkane-based compounds, and 0.1-5 wt% of at least one compound containing cross-lining functional groups.

3. The polyelectrolyte composition according to claim 1, characterized in that the diamine-based compound is a compound selected from the group consisting of *N,N,N′,N′*-tetramethylaminoethane, *N,N,N′,N′*-tetraethylaminoethane, *N,N,N′,N′*-tetramethyl-1,3-propanediamine, *N,N,N′,N′*-tetraethyl-1,3-propanediamine, *N,N,N′,N′*-tetramethyl-1,4-butanediamine, *N,N,N′,N′*-tetraethyl-1,4-butanediamine, *N,N,N′,N′*-tetramethyl-2-butene-1,4-diamine, *N,N,N′,N′*-tetraethyl-2-butene-1,4-diamine, 1,3-bis(dimethylamino)-2-propanol, 1,3-bis(diethylamino)-2-propanol, *N,N,N′,N′*-tetramethyl-1,3-diaminobutane, *N,N,N′,N′*-tetraethyl-1,3-diaminobutane, 1,3-di(4-pyridyl)propane, 4,4′-bipyridyl, 2,2′-bipyridyl, 1,4-diazabicyclo[2,2,2]octane,

N,N'-dimethylpiperazine, *N,N'*-dimethyl-1,3-di(4-piperidyl)propane, pyrazine, pyrazine amide, 4-(*N,N'*-dimethylamino)pyridine, *N,N,N',N'*-tetramethyl-1,5-pentanediamine, *N,N,N',N'*-tetraethyl-1,5-pentanediamine, *N,N,N',N'*-tetramethyl-1,6-hexanediamine and *N,N,N',N'*-tetraethyl-1,6-hexanediamine, or a mixture of two or more of them.

4. The polyelectrolyte composition according to claim 1, characterized in that the dihaloalkane is a compound selected from the group consisting of the compounds containing two halogen atoms such as chlorine, bromine and iodine in alkyl group having 1 to 18 carbon atoms, the cyclic compounds having 5 to 6 carbon atoms and containing two halogen atoms and a mixture of two or more of them, such as 1,4-dichloro-2-butene, 1,4-dibromo-2-butene, 1,3-dichloro-2-propanol, 1,3-dibromo-2-propanol, 2,3-dichloropropanol, 1,3-dichloropropanon, 1,3-dibromopropanon, 1,4-dichloro-2-butanol, bis-2-chloroethyl ether, bis-2-bromoethyl ether, 1,2-bis(2-chloroethoxy)ethane, 1,2-bis(2-bromoethoxy)ethane, 1,3-dichloroacetone, 1,3-dibromoacetone, α, α'-dichloro-*o*-xylene, α, α'-dichloro-*m*-xylene, α, α'-dichloro-*p*-xylene, α, α'-dibromo-*o*-xylene, α, α'-dibromo-*m*-xylene and α, α'-dichloro-*p*-xylene.

5. The polyelectrolyte composition according to claim 1, characterized in that at least one compound containing cross-linking functional group is a compound selected from the group consisting of halogen-containing alcohols, halogen-containing carboxylic acids and amine-containing carboxylic acid, or a mixture thereof.

6. The polyelectrolyte composition according to claim 4, characterized in that the halogen-containing alcohol is a compound selected from the group consisting of alcohol compounds containing one halogen atom such as chlorine, bromine or iodine in alkyl group having 2 to 18 carbon atoms or a mixture thereof and the amine-containing alcohol is a compound selected from the group consisting of 2-aminoethanol, 3-aminopropanol, 2-aminopropanol, amino-2-propanol, aminobutanol, aminocyclohexanol, 2-(ethylamino)ethanol, 2-(methylamino)ethanol, diethanolamine, triethanolamine, *N,N*-dimethylaminoethanol, *N,N*-diethylaminoethanol, *N,N*-dibutylaminoethanol, *N,N*-dimethylaminopropanol, *N,N*-diethylaminopropanol, 3-pyrrolidinol, 1-methyl-3-pyrrolidinol, 1-methyl-2-pyrrolidylethanol, 3-hydroxypiperidine, 4-hydroxypiperidine, 1-(2-hydroxyethyl)piperzine and a mixture thereof.

7. The polyelectrolyte composition according to claim 4, characterized in that the halogen-containing carboxylic acid is a compound selected from the group consisting of carboxylic acids containing one halogen atom such as chlorine, bromine or iodine and having 2 to 18 carbon atoms, or a mixture thereof.

8. The polyelectrolyte composition according to claim 4, characterized in that the amine-containing carboxylic acid is a compound selected from the group consisting of amino acids containing 2 to 18 carbon atoms or a mixture thereof.

9. A polyelectrolyte ink, characterized in that it comprises 10-50 wt% of a polyelectrolyte composition according to any one of claims 1 to 7, 1-10 wt% of a cross-linking agent, 38-88.9 wt% of an organic solvent,

and 0.1-2 wt% of a mixture of a non-ionic surfactant and an ionic surfactant.

10. The polyelectrolyte composition according to claim 8, characterized in that the cross-linking agent is selected from the group consisting of diisocyanate, methylol melamine, methylol urea, blocked isocyanate, aziridine, oxazoline, epoxy, diaminoalkane and carbodiimide cross-linking agent.

11. A process for preparing a humidity sensor, characterized in that a polyelectrolyte ink is spread using inkjet printing mode and then treated with heat to form a humidity sensitive membrane.

12. The process for preparing the humidity sensor according to claim 11, characterizedin that the polyelectrolyte ink according to any one of claims 8 to 9 is spread on the board having electrodes thereon and then treated with heat at 50-200℃ to form the humidity sensitive membrane.